CLAIMS

1. An isolated nucleic acid comprising a nucleotide sequence which is at least about 70% identical to the entire nucleotide sequence set forth in SEQ ID NO: 1 or SEQ ID NO: 3 or complement thereof.

2. An isolated polypeptide comprising an amino acid sequence having an amino acid identity of at least about 70% with the entire amino acid sequence set forth in SEQ ID NO: 2.

3. The isolated polypeptide of claim 2, which is a mammalian polypeptide.

4. The isolated polypeptide of claim 3, wherein the polypeptide is a human polypeptide.

5. The isolated polypeptide of claim 4, which is encoded by the nucleic acid having ATCC Designation No. 209510.

6. The isolated polypeptide of claim 4, which is encoded by a nucleic acid having the nucleotide sequence set forth in SEQ ID NO: 1.

7. The isolated polypeptide of claim 6, which has the amino acid sequence set forth in SEQ ID NO: 2.

8. An isolated polypeptide comprising an amino acid sequence which is at least about 90% identical to at least about 15 consecutive amino acid residues of SEQ ID NO: 2.

9. The isolated polypeptide of claim 9, which has a bioactivity of an ACE-2 polypeptide.

10. The isolated polypeptide of claim 9, which binds a target peptide.

11. The isolated polypeptide of claim 10, which binds angiotensin I.

12. The isolated polypeptide of claim 11, which hydrolyzes angiotensin I into angiotensin (1-9).

13. The isolated polypeptide of claim 10, which binds kinetensin.

14. The isolated polypeptide of claim 13, which hydrolyzes kinetensin into kinetensin (1-8).

15. The isolated polypeptide of claim 8, which is encoded by a nucleic acid which hybridizes to a nucleic acid having the nucleotide sequence set forth in SEQ ID NO: 1 or complement thereof.

16. An isolated polypeptide comprising an amino acid sequence which is at least about 70% similar to at least about 50 consecutive amino acid residues of SEQ ID NO: 2 and which has a bioactivity of an ACE-2 polypeptide.

17. A method for producing a polypeptide of claim 2, comprising incubating a host cell including a nucleic acid encoding the polypeptide of claim 2 operably linked to a regulatory element, to thereby produce the polypeptide of claim 2.

18. The method of claim 17, wherein the host cell is *in vivo*.

19. A method for producing a polypeptide of claim 8, comprising incubating a host cell including a nucleic acid encoding the polypeptide of claim 8 operably linked to a regulatory element to thereby produce the polypeptide of claim 8.

20. A method for identifying an ACE-2 therapeutic, comprising contacting an ACE-2 polypeptide with a test compound and determining an ACE-2 bioactivity, such that a difference in the bioactivity of the ACE-2 polypeptide contacted with the test compound relative to an ACE-2 polypeptide that was not contacted with the test compound, indicates that the test compound is an ACE-2 therapeutic.

21. The method of claim 20, wherein the ACE-2 bioactivity includes binding of an ACE-2 polypeptide to a binding partner, and the method comprises

(i) combining an ACE-2 polypeptide and an ACE-2 binding partner, and a test compound under conditions wherein, but for the test compound, the ACE-2 polypeptide and ACE-2 binding partner form a complex; and

(ii) detecting the formation of an ACE-2 polypeptide/ACE-2 binding partner complex, such that a difference in the formation of an ACE-2 polypeptide/ACE-2 binding partner complex in the presence of a test compound relative to the absence of the test compound indicatives that the test compound is an ACE-2 therapeutic.

22. The method of claim 21 for identifying an ACE-2 antagonist, comprising

(i) combining an ACE-2 polypeptide and an ACE-2 binding partner, and a test compound under conditions wherein, but for the test compound, the ACE-2 polypeptide and ACE-2 binding partner form a complex; and

(ii) detecting the formation of an ACE-2 polypeptide/ACE-2 binding partner complex, such that a reduction in the formation of an ACE-2 polypeptide/ACE-2 binding partner complex in the presence of a test compound relative to the absence of the test compound indicatives that the test compound is an ACE-2 antagonist.

23. The method of claim 21, wherein the ACE-2 binding partner is a target peptide or analog thereof.

24. The method of claim 23, wherein the binding partner is angiotensin I or a portion thereof or an analog thereof sufficient for binding to an ACE-2 polypeptide.

25. The method of claim 23, wherein the binding partner is angiotensin I or a portion thereof or an analog thereof sufficient for binding to, and being hydrolyzed by, an ACE-2 polypeptide.

26. The method of claim 23, wherein the binding partner is kinetensin or a portion thereof or an analog thereof sufficient for binding to an ACE-2 polypeptide.

27. The method of claim 26, wherein the binding partner is kinetensin or a portion thereof or an analog thereof sufficient for binding to, and being hydrolyzed by, an ACE-2 polypeptide.

28. The method of claim 21, wherein the ACE-2 polypeptide comprises at least 15 amino acids having an amino acid sequence which is at least about 90% identical to an amino acid sequence set forth in SEQ ID NO: 2.

29. The method of claim 21, wherein the ACE-2 polypeptide is encoded by a nucleic acid which hybridizes to a nucleic acid having the nucleotide sequence set forth in SEQ ID NO: 1.

30. The method of claim 20, wherein the ACE-2 bioactivity includes cleavage of a target peptide by an ACE-2 polypeptide, and the method comprises

(i) combining into a reaction mixture an ACE-2 polypeptide and an ACE-2 target peptide or analog thereof, and a test compound under conditions

wherein, but for the test compound, the ACE-2 polypeptide cleaves one or more amino acids from the ACE-2 target peptide or analog thereof, thereby producing an ACE-2 target peptide conversion product; and

(ii) detecting in the reaction mixture the presence of at least one of the ACE-2 target peptide or analog thereof, the ACE-2 target peptide conversion product, and the one or more amino acids, such that a difference in the level of at least one of the ACE-2 target peptide or analog thereof, the ACE-2 target peptide conversion product, and the one or more amino acids in the reaction mixture containing the test compound relative to a reaction mixture that does not contain the test compound indicatives that the test compound is an ACE-2 therapeutic.

31. The method of claim 30, for identifying an ACE-2 antagonist, comprising

(i) combining into a reaction mixture an ACE-2 polypeptide and an ACE-2 target peptide or analog thereof, and a test compound under conditions wherein, but for the test compound, the ACE-2 polypeptide cleaves one or more amino acids from the ACE-2 target peptide or analog thereof, thereby producing an ACE-2 target peptide conversion product; and

(ii) detecting in the reaction mixture the presence of at least one of the ACE-2 target peptide or analog thereof, the ACE-2 target peptide conversion product, and the one or more amino acids, such that a lower level of at least one of the ACE-2 target peptide conversion product and the one or more amino acids produced, or a higher level of the ACE-2 target peptide or analog thereof, in the reaction mixture containing the test compound relative to a reaction mixture that does not contain the test compound indicatives that the test compound is an ACE-2 antagonist.

32. The method of claim 30, wherein the target peptide is angiotensin I or a portion thereof or an analog thereof sufficient for being cleaved by an ACE-2 polypeptide.

33. The method of claim 30, wherein the target peptide is kinetensin or a portion thereof or analog thereof sufficient for being cleaved by an ACE-2 polypeptide.

34. The method of claim 30, wherein the ACE-2 polypeptide comprises at least 15 amino acids having an amino acid sequence which is at least about 90% identical to an amino acid sequence set forth in SEQ ID NO: 2.

35. The method of claim 30, wherein the ACE-2 polypeptide is encoded by a nucleic acid which hybridizes to a nucleic acid having the nucleotide sequence set forth in SEQ ID NO: 1.

36. The method of claim 30, wherein detecting in the reaction mixture the presence of at least one of the ACE-2 target peptide or analog thereof, the ACE-2 target peptide conversion product, and the one or more amino acids comprises obtaining a mass spectrum of the reaction mixture or of a part thereof.

37. A method for modulating a bioactivity of an ACE-2 polypeptide, comprising contacting an ACE-2 polypeptide with a compound which has been identified according to the method of claim 30, such that the ACE-2 activity is modulated.

38. A method for treating or preventing the development of an abnormal blood pressure or disease or disorder associated therewith in a subject, comprising administering to the subject an effective amount of a pharmaceutical composition comprising an ACE-2 therapeutic, such that the disease or disorder in the subject is treated or prevented.

39. The method of claim 37, wherein the disease is selected from the group consisting of hypertension, congestive heart failure, chronic heart failure, acute heart failure, myocardial infarction, atherosclerosis, and renal failure.

40. The method of claim 37, further comprising administering to the subject an agonist of an ACE polypeptide.

41. A method for determining whether a subject has or is at risk of developing a disease or condition which is caused or contributed to by an aberrant ACE-2 activity, comprising measuring in the subject or in a sample obtained from the subject at least one ACE-2 activity, wherein a difference in the ACE-2 activity relative to the ACE-2 activity in a normal subject indicates that the subject is at risk of developing a disease caused by or contributed to by an aberrant ACE-2 activity.

42. A method for identifying a substrate of an ACE-2 polypeptide, comprising

(i) contacting an ACE-2 polypeptide with a test compound in a reaction mixture under conditions in which the ACE-2 polypeptide is able to cleave a substrate; and

(ii) determining the mass spectrum of the reaction mixture of step (a) or a part thereof,

such that the presence of a lower peak characteristic of the test compound in the reaction mixture of step (a) relative to that in a reaction mixture that does not contain the ACE-2 polypeptide, indicates that the test compound is a substrate of the ACE-2 polypeptide.